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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/643,310

08/19/2003

Daniel E. Brueske

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7590

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EXAMINER

SHINGLETON, MICHAEL B

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 01/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,310

Applicant(s)

BRUESKE ET AL.

Examiner

Michael B. Shingleton

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE Three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17, 19-23 are rejected.
- 7) ☒ Claim(s) 18 is/~~are~~ objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/19/2003
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 5, 16, 17, 20 and 21 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Ingino, Jr. 6,566,970 (Ingino).

Figures 1, 2 and 5 of Ingino, Jr. discloses a VCO and method of providing a signal delay in a VCO arrangement having at least one current amplifier composed of transistors M_{M4} and M_{M5} . Note that the current mirror arrangement composed of elements 201 and 203 of the instant invention is recited by applicant as a current amplifier, and since Ingino Jr. shows the same structure, it is every much a current amplifier as applicant's. Furthermore a current mirror by definition is a device that outputs a current that is proportional to the input current. A current mirror belongs to the more generic field of current amplifiers. Figure 2 of Ingino, Jr. shows the details of the filter 28 that is applied to the input of the current amplifier. This is composed of a variable "resister" capacitor filter. Note R_1C_1 that varies the signal delay of the VCO arrangement. Simply put it takes time to charge the capacitor in the filter arrangement of the VCO of Ingino, Jr. which in turn defines a delay time that is controlled by the RC time constant of the circuit. One of ordinary skill in the art can appreciate that capacitor C_1 provides for fine-tuning of the amount of signal delay and capacitor C_2 provides for coarse tuning of the amount of signal delay.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be

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patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-11 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Ingino, Jr. 6,566,970 (Ingino) in view of Sahota 5,880,631 (Sahota).

Ingino as applied in the above 35 USC 102 rejection and the following: Base claim 8 recites two current amplifiers and the variable delay network, i.e. "resister" capacitor (RC) tuning network. This claim and the claims dependent thereon fail to limit the delay network as having the first current amplifier being connected to the input of this delay and the second current amplifier being connected to the output of the delay network i.e. the delay network being between the two current amplifiers. Note that the variable resistor element of Ingino clearly controls the gain of the current amplifier because it acts as an attenuator.

It is well known to cascade current amplifiers so as to increase the dynamic range of the arrangement and is an art recognized equivalent to a single current amplifier.

Thus it would have been obvious to one of ordinary skill in the art to have provided a plurality of current amplifiers cascaded given the art recognized equivalents of these elements and so as to increase the dynamic range over an arrangement that employs but a single current amplifier.

Claims 2, 3, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ingino, Jr. 6,566,970 (Ingino) in view of Ciccarelli et al. 6,175,279 (Ciccarelli).

Ingino as applied in the above 35 USC 102 rejection and the following: Ingino lacks a filter for bias network composed of transistor M_{11} . Figure 5B of Ciccarelli clearly shows a current bias network that is controlled by at least one control voltage having a filter capacitor C5 that filters or "removes" unwanted signal components. Ciccarelli calls this a "bypassing" operation but one of ordinary skill in the art would appreciate the filtering function that this capacitor performs. The structure of Ciccarelli also provides a switch Q2 that bypass the filter i.e. C5 so as to provide the maximum amount of current.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the current network of Ingino with one like that of Ciccarelli so as to provide the filter function and still have the capability to providing the maximum current as taught by Ciccarelli.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ingino, Jr. 6,566,970 (Ingino) in view of Sahota 5,880,631 (Sahota) as applied to claims 8-11 above, and further in view of Ciccarelli et al. 6,175,279 (Ciccarelli).

Ingino lacks a filter for bias network composed of transistor M_{il} . Figure 5B of Ciccarelli clearly shows a current bias network that is controlled by at least one control voltage having a filter capacitor $C5$ that filters or “removes” unwanted signal components. Ciccarelli calls this a “bypassing” operation but one of ordinary skill in the art would appreciate the filtering function that this capacitor performs. The structure of Ciccarelli also provides a switch $Q2$ that bypass the filter i.e. $C5$ so as to provide the maximum amount of current.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the current network of Ingino with one like that of Ciccarelli so as to provide the filter function and still have the capability to providing the maximum current as taught by Ciccarelli

Claims 6, 7, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ingino, Jr. 6,566,970 (Ingino) in view of Ochiai 2002/0014925 (Ochiai).

Ingino as applied in the above 35 USC 102 rejection and the following: Ingino is silent on the composition of the variable capacitance elements.

One art recognized equivalent and common form of variable capacitance is what applicant terms the VVC as shown by Figure 1 of Ochiai. Note the plurality of bias reference voltages formed by transistors 11_{1-3} and the at least one tuning voltage V_{IN} .

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the variable capacitance elements of Ingino with those VVC's of Ochiai because, as the Ingino reference is silent on the exact variable capacitance element one of ordinary skill in the art would have been motivated to use any art-recognized equivalent variable capacitance element including the VVC variable capacitance element as taught by Ochiai.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ingino, Jr. 6,566,970 (Ingino) in view of Sahota 5,880,631 (Sahota) as applied to claims 8-11 above, and further in view of Ochiai 2002/0014925 (Ochiai).

Ingino is silent on the composition of the variable capacitance elements.

One art recognized equivalent and common form of variable capacitance is what applicant terms the VVC as shown by Figure 1 of Ochiai. Note the plurality of bias reference voltages formed by transistors 11_{1-3} and the at least one tuning voltage V_{IN} .

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the variable capacitance elements of Ingino with those VVC's of Ochiai because, as the Ingino reference is silent on the exact variable capacitance element one of ordinary skill in the art would have been motivated to use any art-recognized equivalent variable capacitance element including the VVC variable capacitance element as taught by Ochiai.

Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Figures like Figure 2 of Kondoh 5,770,978 discloses the basic current amplifier arrangement used in a ring oscillator wherein each delay cell i.e. amplifier is composed of two cascaded current amplifiers. Kondoh, however, fails to show or suggest a variable "resister" capacitor formed between the two cascaded current amplifiers. Thomas 4,320,360 discloses a current amplifier 55 and a variable capacitance element 51 along with a DC control arrangement 53. This reference would meet the broader claims of the instant application when the obvious substitution of a variable "resister" element is used for the DC control arrangement.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is (571) 272-1770. The examiner can normally be reached on Tues-Fri from 8:30 to 4:30. The examiner can also be reached on alternate Mondays. The examiner normally has the second Mondays of the bi-week off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal, can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBS

November 16, 2004

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